

**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
Honolulu, Hawaii**

180-Day Exp. Date: July 9, 2011

June 23, 2011

**Board of Land and
Natural Resources
State of Hawaii
Honolulu, Hawaii**

REGARDING: Conservation District Use Application (CDUA) OA-3579 for the Honolulu Sea Water Air Conditioning (SWAC) Project

AGENT/APPLICANT: TEC Inc. for Honolulu Seawater Air Conditioning, LLC.

LOCATION Submerged Land, Makai of Kakaako Waterfront Park, Offshore of Plat (1) 2-1-060 and Channel D of Keehi Lagoon, Island of Oahu

LANDOWNER: State of Hawaii

USE: Kakaako -Approximately (\approx) 8.0 Acres
Keehi Lagoon - \approx 50.0 Acres

SUBZONE: Resource

DESCRIPTION OF AREA AND CURRENT USE (Exhibits 1 & 2)

The project corridor lies offshore of Kakaako Waterfront Park, south of Honolulu Harbor, on the Island of Oahu. Temporary use of Channel D of Keehi Lagoon, for offshore staging is also proposed. Both the permanent and temporary use of submerged lands are within the Resource subzone of the Conservation District.

The shoreline area is fixed by a man-made revetment and storm water box culvert. The revetment was constructed on a limestone bench in 6-15 feet of water between Fort Armstrong and Kewalo Basin along the seaward side of Kakaako Waterfront Park. The Park has a number of paved walking, jogging and running trails. The park sits atop a former landfill and solid waste disposal site.

According to the applicant, the marine area in the vicinity of the proposed pipeline corridor has been subjected to municipal waste dumping, sewage discharges, dredged

material dumping and other waste disposal activities. The area is also exposed to barge tow cables dragging on the seafloor and sediment inputs from Honolulu Harbor.

Based on benthos surveys taken at the project corridor, the area has limited marine biological resources and is seasonally subject to high surf that keeps the marine community in an early stage of succession. High summer surf causes turbidity and abrasion by moving rubble along the seafloor thereby reducing the biological productivity and potential establishment of coral colonies. Four biotopes are present seaward of the shoreline including scoured limestone, scattered corals, dredged rubble and sand. A more detailed marine biological survey of the pipeline breakout area (Approximately 1,800-ft offshore) was conducted to verify the presence/absence of corals¹.

An archaeological study and cultural impact assessment was prepared for the project. No valued cultural, historical or natural resources customarily or traditionally used by native Hawaiian's will be adversely affected within the Conservation District. It is believed that there are no historic, archaeological or cultural sites within or near the submerged land portion of the project.

There are no known permanent habitations of rare, threatened or endangered species in the vicinity of the project. Turtle nesting beaches, haul-outs, and preferred algal forage areas are limited if not entirely absent in both the pipe assembly area and the pipe corridor. There may be transient species of importance such as whales, monk seals and particularly turtles in the vicinity of the project site.

Flies and Point Panic are surfing spots near here. Paddling may also take place in the vicinity. Pole, net and spear fishing is practiced near shore. Commercial fishery landings data verify that this area is not an important fishing ground.

Keehi Lagoon

Channel D parallels the western shore of Sand Island and is \approx 0.75 miles long and dredged to a 12-foot depth with a mud bottom. Its benthic community is consistent with highly disturbed marine ecosystems. The area is lightly used for small boat moorings. The southern end of the channel is closed off with no access to the ocean, reducing ocean effects in this area. The area is relatively remote amongst an industrial setting.

Canoe paddlers practice to the far north of the temporary site. Arrangements have been made to ensure access to Mokauea Island. The staging area is not known to have species of concern, valued habitat or pristine coral reefs.

An archaeological study and cultural impact assessment was prepared. No valued cultural, historic, natural or traditional resources were identified as Keehi Lagoon and the adjacent onshore staging area were created from fill generated by dredging. However, a

¹ The project calls for micro-tunneling out to about 1,800-feet offshore and then placement of pipes on the ocean floor for the remainder of the pipeline distance.

fishing settlement is located on Mokauea Island on the opposite side of Channel D and access to the island will be maintained thru agreements made with individuals wanting access.

PROPOSED USE (Exhibits 3, 4, 5, 6, 7 & 8)

Honolulu Seawater Air Conditioning, LLC is proposing to utilize submerged land within the Conservation District to accommodate underground and submerged intake and return pipes. The applicant is proposing to obtain deep, cold seawater, utilize its thermal properties to cool a closed loop freshwater system and return the seawater back to the sea. Approximately (\approx) 8-acres of submerged land is proposed for permanent use and \approx 50-acres of the waters of Keehi Lagoon are proposed for temporary use. The project consists of:

- A 63"Ø seawater **intake pipe** extending offshore beyond State waters \approx 5-miles to a depth of about -1,700-ft;
- A 54"Ø seawater **return pipe** extending offshore \approx 3,500-ft. to a depth of \approx -150-ft; and
- A temporary staging area to assemble the pipes along the western shore of Sand Island and in the adjoining Channel "D" of Keehi Lagoon.

Other components of the proposal outside of the State Conservation District within the Urban District include a two-story pumping/cooling station containing pumps, heat exchangers and auxiliary chillers and a network of chilled water distribution pipes from the station to customer buildings in the downtown area.

The pipelines would be installed behind the shore and micro-tunneled to about 1,800-feet offshore in order to reduce negative impacts to the near shore benthic environment and to protect the pipes from high waves and storm surge in the nearshore zone. An offshore receiving pit would be excavated and backfilled at the pipeline's "breakout" location. The breakout point and the remainder of the offshore route of the seawater intake pipe were determined based on bathymetry, biological characteristics, and the use of the area.

The intake and return pipelines will be installed adjacent to each other and would be supported on pre-cast concrete supports which would be placed on the pipelines prior to their filling and sinking at the project site. The seaward end of the **intake** pipe would be unscreened and would terminate in a right-angle elbow, such that water would be drawn into the pipe from about 14-feet above the sea bottom. The seaward end of the **return** pipeline would terminate in a diffuser.

Breakout & Receiving Pit

Through micro-tunneling, the intake pipe and the return pipe will emerge \approx 1,800-feet offshore (\approx 31' deep). A 30' x 40' receiving pit would be excavated 20-ft below the sea floor and contained in sheet piles extending from the bottom of the pit to 10-ft above the seafloor. The pit would facilitate retrieval of the micro-tunneling machine. About 2,700

cubic yards of material is expected to be removed from the pit. All soil removed from the tunnel, jacking pits and receiving pit would be processed and disposed of on land.

The pit and breakout point would serve as a junction to join the underground pipes with the portion of the pipes that continue seaward on the ocean bottom. After completion of the connections, the pit would be backfilled and covered with a concrete cap at roughly the same elevation as the surrounding seafloor. The cap material would not be subject to movement and would be permanent. Concrete used for the cap has previously been shown to create substratum for the recruitment of corals. The bathymetry would be restored to original conditions to the extent practical so that ocean currents would not be modified and the probability of underwater landslides would not be increased. The backfill would be crushed pre-washed basalt gravel graded between 3/8" and 2" size. The sheet piles would be removed or cut off at least 2-feet below the existing seafloor.

Pipelines

From the breakout point at 1,800-feet offshore, the seawater intake and return pipe would parallel one another for about 1,700 linear feet to the end of a diffuser. Both the intake and return pipes would be secured in combination anchor collars that would hold both pipes adjacent to one another. As there is a concern with barge tow cables that drag on the seabed near the harbor entrance, specially designed snag-resistant anchor weights would be used down to a depth of -150-feet where the **return pipe** would terminate at a discharge point with a 25-port, 400-foot long diffuser about 3,500-feet offshore. The **intake pipe** would extend beyond the State's jurisdiction and into federal waters.

The temperature of the return seawater would vary between 53°-58° F depending on system demand. There will be a Zone of Mixing (ZOM) around the diffuser. The plume would be denser than the receiving water as it is colder than the surrounding waters. As such, the returned seawater would tend to sink rather than rise and the discharge is unlikely to reach surface waters. The applicant will obtain a ZOM permit from the **State Department of Health** that shall regulate the mixing and discharge criteria.

The pipes would be pinned to the bottom with hollow steel piles driven through anchor collars mounted on the pipeline and filled as necessary with concrete. Beyond the terminus of the return pipe, the intake pipeline would be held in place by gravity anchors. Each anchor would weigh \approx 17,800 pounds and provide an effective weight of 10,300 pounds when submerged.

Keehi Lagoon Staging and Deployment

The Keehi Lagoon would be used temporarily for floating storage and staging of the pipes assembly. Individual pipe segments would be heat-fused to form longer segments and then flange-bolted to form a continuous line at the temporary staging area on shore. Private security guards and/or patrols will be located onsite at the staging area. During pipe assembly activities, BMPs shall be implemented to reduce, minimize and mitigate potential impacts. On the landward adjacent staging area, construction fencing and silt fences would be installed to reduce sediment runoff.

Once the pipe segments are fused together on the adjacent shoreline into 3,300-ft segments, the assemblage would be launched directly into the waters of the Lagoon as fused and then moored. The floating segments would be stored (moored) in Channel D pending completion of all segments. Five to eight 3,300-foot long sections of pipeline could be stored in the Lagoon. Concrete anchors and stiffening rings would be added to the pipe from a barge while the pipe sections float in the Keehi Lagoon staging area. A 150-ft to 200-ft buffer would be established between the floating pipe and the adjacent east and west shoreline to ensure safety and security of the floating pipe and will minimize any interruption of access along the shoreline.

Deployment of the pipe assembly would most likely take place in the winter when large southern swells are infrequent. As the pipeline is towed out of Keehi Lagoon, sections would be added and would be maneuvered out via the Kalihi channel. A minimum of 3 tugs would be used to maneuver the pipelines to their final position offshore of Kakaako once all the segments are fused together.

The pipelines would be towed to and extended seaward of the breakout point. The shore end would be temporarily secured to provide tension and the pipeline sunk in a controlled manner from shallow to deep water by filling the pipes with seawater. The pipelines would be positioned in a single day and sunk at night to avoid the effects of differential heating of the pipe segments during the day. During the final assembly of the pipelines and towing from Keehi Lagoon, a fleet of boats would guide vessel traffic safely around the work area. Over the course of the following week, the offshore pipes would be connected to the pipes contained in the micro tunneled shaft at the breakout point. Subsequently, the breakout point would be capped with concrete.

Impacts/Mitigation

According to the applicant, the location of the breakout point is sufficiently far offshore to avoid and minimize impacts from high waves and storm surge to the pipes, while reducing potential negative effects on benthos ecosystems including coral reefs. The breakout point is located in coral rubble. The applicant shall coordinate with the Coast Guard relative to maintaining safe navigation during construction activities and operations.

Construction impacts would be mainly associated with the excavation of the receiving pit for the micro-tunneling machine at the breakout point. The offshore construction at the breakout point would require vessels and possibly a pile-supported platform to occupy the area for 7-9 months. Water activities in the immediate area surrounding the breakout point, an area of about 200-ft², ≈1,800-ft offshore would be restricted for 7-9 months during construction activities.

Sediments would be removed and bathymetry would be altered at the pit. Identified temporary impacts would include elevated levels of suspended sediments in waters surrounding the excavation area. There is no practicable alternative to the proposed discharge of gravel and concrete to cap the breakout pit. As the breakout point is very sparse in coral coverage and along the seaward path of the pipes, construction activities would potentially affect a few square feet of living coral colonies.

According to the applicant, there would likely be loss of coral colonies within the ZOM if the temperature at the bottom is reduced below thermal thresholds. Once operational, the system would impact water quality and marine biota within a defined ZOM. According to the applicant, the pipes and anchors would increase substrate area for benthic organisms and could increase the number of areas in which fish could avoid predation.

It is not anticipated to interrupt or diminish recreational activities makai of Kakaako Park as the surf spot is to the east of the site and paddlers tend to stay clear of the west end of Kakaako Park near the vicinity of Honolulu Harbor.

According to the applicant, once completed the presence of the pipes would have no effect on current recreational uses of the offshore area. The pipes would increase bottom relief and provide habitat. Bathymetry was considered to find the shortest pipe length required to get to the desired intake depth. The primary biological criterion was avoidance of areas of high coral coverage. A marine biological survey of the breakout area was conducted.

Construction activities would cease if listed (endangered or threatened) marine species are observed entering the active project construction site and work would be allowed to resume only after the listed species departs the construction site on its own. The National Marine Fisheries Service would be notified of each such occurrence.

Best management practices (BMPs) would be fully implemented during construction of the receiving pit and breakout point such as daily inspections of equipment for conditions that could cause spills or leaks; cleaning of equipment prior to deployment in the water; proper location of storage, refueling and servicing sites; and implementation of adequate spill response and storm weather preparation plans. The applicant has proposed specific mitigation measures to address potential adverse effects noted as **Exhibit 9**. The submerged portions of the pipeline and its anchoring structures are unlikely to be visible from boats passing over them given their depth and the water clarity in the vicinity.

Public fishing, boating and paddling in Keehi Lagoon would be temporarily restricted for safety reasons during the pipe assembly and storage portions of the project, the HSWAC shall work in close collaboration with the Division of Boating and Ocean Recreation in this regard. Access along the shoreline in the vicinity of the onshore staging area would be temporarily restricted during the pipe assembly activities.

Additional Discretionary Government Permits

According to the applicant, further authorizations within the Conservation District are required. Effluent discharge will be regulated through the National Pollution Discharge Elimination System (NPDES) Permit and a Zone of Mixing Permit from the Department of Health. A Department of the Army (DA) Permit is also required for compliance with both Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. In addition Essential Fish Habitat and Endangered Species Act Section 7 Consultation will be required as part of the DA permit. In accordance with the above-mentioned

permits, water quality and marine biota monitoring would be conducted during construction and operation. The Draft Environmental Impact Statement under the National Environmental Policy Act (NEPA) to support the Department of the Army permit is currently being processed.

The purpose of the development is to transfer the cold from the deep seawater to a closed loop fresh water distribution network for air conditioning of various buildings located downtown. According to the applicant, this proposal will eliminate the need to use up to 260 million gallons of potable fresh water per year and reduce up to 84 million gallons of wastewater generation per year. The HSWAC will reduce the use of ozone depleting substances and chemicals (refrigerants) used in maintaining existing conventional air conditioning systems. The project would further the objectives of numerous plans and policies of the State of Hawaii. The proposal is estimated to cost approximately \$200 million and once all permits are obtained, it is projected that the system will be operational within 18 months thereafter.

SUMMARY OF COMMENTS

The application was referred to the following agencies for their review and comment-the Federal Offices of National Oceanic & Atmospheric Administration; the Fish & Wildlife Services; the Coast Guard, and the Department of the Army; the State: Department of Land and Natural Resources Divisions of: Aquatic Resources, Boating & Ocean Recreation, Conservation & Resource Enforcement, Oahu District Land Office and Parks; the Department of Health; the Department of Transportation-Harbors; the Office of Hawaiian Affairs; the Office of Environmental Quality Control; the City: Department of Planning and Permitting and the Ala Moana/Kakaako Neighborhood Board. In addition, this CDUA was also sent to the nearest public library, the Hawaii State Public Library, to make this information readily available to those who may wish to review it.

Comments were received by the following and summarized by Staff as follows:

THE STATE

OFFICE OF HAWAIIAN AFFAIRS

OHA recognizes that major project components that have the potential to adversely impact natural and cultural resources will occur outside of the Conservation District and are not subject to this CDUA.

OHA is continuing to assess the potential impacts of project activities that may adversely impact marine resources and activities within the Conservation District.

Applicant's response

HSWAC looks forward to contributing to Hawaii's energy independence while doing so in a culturally sensitive fashion that implements prudent management practices and protocols. Precautions will be taken to minimize impacts to the natural environment. Disruption of public access will be restricted to the work area for public safety.

DEPARTMENT OF LAND AND NATURAL RESOURCES

Aquatic Resources

In response to our comments that have been included with the Final Environmental Impact Statement (EIS), the applicant has stated that they will work with DAR and comply with all state laws concerning coral and live rock. DAR would like to remind Honolulu Seawater Air Conditioning, LLC. that they may need to get a Special Activity permit from DAR if this project damages coral or live rock.

DAR would like to request a copy of the "videos and still photos" mentioned in their response to our comments of the path of the pipes.

Applicant's response

HSWAC will comply with all state laws concerning coral and live rock and we look forward to collaborating with DAR in obtaining a special activity permit, where applicable. HSWAC will gladly share useful videos and still photos of any submerged areas surveyed.

Boating and Ocean Recreation

No objections

Conservation and Resource Enforcement

No comments

Oahu District Land Office (ODLO)

The applicant is aware that easements are required on State lands.

Office of Conservation and Coastal Lands

Some of the concerns that the OCCL continues to have include the effects the nutrient rich deep-water return may have on benthos communities in the vicinity of the return pipe, potential coral damage, and lack of mitigation to prevent sea life from entering the intake pipe. However, Staff believes that these matters will be covered under the Department of the Army Permits for construction and water quality.

State Parks (SP)

State Parks has agreed to the use of the park for the assembly and storage of the pipeline prior to its being placed in Keehi Lagoon. Conditions for the use of the park will be addressed in the permits issued by us to the applicant.

Should the CDUA be approved, please forward a copy to Parks to insure that the conditions imposed in the permits we issue do not conflict with those conditions imposed through the CDUP for Keehi Lagoon and the shoreline of the park.

Applicant's response

We will continue collaboration, dialogue and coordination with your Office to ensure consistency in the conditions of approval. We greatly appreciate your support for using a portion of the Sand Island State recreation Area in the future for temporary staging of the project.

DEPARTMENT OF TRANSPORTATION

We request that the applicant coordinate with our Oahu District Office due to the proximity of the project to Honolulu Harbor to avoid conflicts with maritime operations during construction of this project.

Applicant's response

We will continue collaboration, dialogue and coordination with Harbors Oahu District Manager to ensure efficient maritime operations in Honolulu Harbor and its surroundings during the HASWAC project construction and staging.

THE CITY AND COUNTY OF HONOLULU

DEPARTMENT OF PLANNING AND PERMITTING

Applicant's Response

Communications with your agency has been very helpful and we appreciate the guidance and insight of your staff. We will continue to collaborate with your agency.

ANALYSIS

After reviewing the application, by letter dated January 13, 2011, the Department finds that:

1. The proposed use is an identified land use in the Resource subzone of the Conservation District, pursuant to §13-5-22, Hawaii Administrative Rules (HAR), P-6 PUBLIC PURPOSE USES land uses which are undertaken by non-governmental entities which benefit the public in accordance with public policy and the purpose of the conservation district. Please be advised, however, that this finding does not constitute approval of the proposal;

2. Pursuant to §13-5-40 of the HAR, a Public Hearing is required;
3. In conformance with Chapter 343, Hawaii Revised Statutes (HRS), as amended, and Chapter 11-200, HAR, the Final Environmental Impact Statement has been reviewed and accepted by the State Office of Planning. Notice was published in the September 23, 2009 issue of the Environmental Notice; and
4. The Conservation District portion of this project does not lie within the Special Management Area.

Notice of CDUA OA-3579 was published in the February 8, 2011 issue of the Environmental Notice.

A public hearing took place at 6 pm on March 8, 2011, at the Kalanimoku Building Board Room. Four individuals, OCCL Staff and the applicant's associates and agents were present. All testimony supported the project.

CONSERVATION CRITERIA

The following discussion evaluates the merits of the proposed land use by applying the criteria established in §13-5-30, HAR.

1. *The proposed land use is consistent with the purpose of the Conservation District.*

The objective of the Conservation District is to conserve, protect and preserve the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare.

Staff believes the proposal is consistent with the purpose of the Conservation District. The project uses cold ocean water and returns it to the sea in its natural state. Estimates of proposed reduction of uses include: potable water (260 million gallons/year); wastewater generation (84 million gallons per year); fossil fuel consumption and the production of pollutants associated with fossil fuel combustion (reductions of CO₂ emissions-84,000 tons/year; VOC emissions-5 tons/year; Carbon Monoxide emissions-28 tons/year; Nitrogen Oxides emissions-169 tons/year; Sulfur Oxide emissions - 165 tons/year) and reduces the use of harmful chemicals (refrigerants) utilized in air conditioning.

The energy reduction and removal of harmful emissions increases the public health and is a step towards moving the State towards natural energy alternatives thereby increasing the State's sustainability.

2. *The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur.*

The objective of the Resource subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas. The proposed use is an identified land use in the Resource subzone of the Conservation District, pursuant to §13-5-3, Hawaii Administrative Rules (HAR), §13-5-22, P-6, PUBLIC PURPOSE USES.

The project site is not pristine and areas have been previously disturbed. Once the pipeline is completed, aquatic species may colonize along the permanent structure.

Staff believes the project is a good use of an existing natural resource that leaves no residuals or by-products. Ocean water is used and returned in its natural state.

Further authorizations are required by State and Federal agencies that will contribute to ensuring the sustained use of the resources.

3. *The proposed land use complies with provisions and guidelines contained in Chapter 205, HRS, entitled "Coastal Zone Management," where applicable.*

Staff believes that recreational resources, historical resources, scenic and open space resources, and coastal ecosystems, shall be preserved with the incorporation of best management practices and compliance with government regulations.

4. *The proposed land use will not cause substantial adverse impacts to existing natural resources within the surrounding area, community, or region.*

According to the applicant, the proposed routing for the HSWAC offshore pipes were located specifically to avoid and minimize adverse impacts to existing natural resources. Mitigation for the project is noted as Exhibit 9. Staff generally believes the proposed land use will not cause substantial adverse impacts to existing natural resources within the surrounding area, community or region. The proposed land use does not change the existing use of the area.

5. *The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding area, appropriate to the physical conditions and capabilities of the specific parcel or parcels.*

Staff believes that the proposed land use will be compatible and appropriate to the physical conditions of the area, as the proposed use does not require new construction of above ground facilities. The project will not create a visual or functional change in the project area.

6. *The existing physical and environmental aspect of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, which ever is applicable.*

Upon construction completion, the project area shall return to its natural state and mitigation for potential impacts have been formulated. Staff believes the existing physical and environmental aspects of the land shall be preserved.

7. *Subdivision of the land will not be utilized to increase the intensity of land uses in the Conservation District.*

There will be no subdivision of land for this proposed project.

8. *The proposed land use will not be materially detrimental to the public health, safety and welfare.*

Staff believes the proposed project will not be materially detrimental to the public health, safety and welfare. During the construction period, the public shall be restricted from entering the work area to maintain safety. There shall be controlled access to clearly define and limit work areas, which shall protect the public from potential hazards.

As previously mentioned, the proposal will have a number of beneficial impacts including reductions in consumption of fossil fuels, electricity, potable water, and refrigerant compounds that will positively contribute to the public's health, safety and welfare.

DISCUSSION

The project will utilize an abundant ocean resource, cold deep seawater to cool a closed loop freshwater system that will traverse Honolulu's Downtown area. The cold of the deep will be transferred to the water in the loop system by corrosion-resistant alloy plate heat exchangers and then returned to the ocean.

The applicant has proposed specific mitigation measures to address potential adverse effects noted as **Exhibit 9**. Mitigation commitments contained in the Final Environmental Impact Statement are to be incorporated into the project and will be made conditions of the permit. Should endangered or threatened marine species enter the active project construction site, construction activities would cease and work would be allowed to resume only after the listed species departs the construction site on its own. The National Marine Fisheries Service would be notified of each such occurrence.

Staff notes, a request for comments regarding this application was forward to the Federal Offices of National Oceanic & Atmospheric Administration, the Fish & Wildlife Services, the Coast Guard, the Department of the Army (DOA) and the State Department of Health (DOH). Although no comments were forthcoming from these agencies, additional required authorizations from the DOA and the DOH could incorporate concerns these agencies may have.

During the processing of the draft EIS, staff had noted a concern with the lack of mitigation to prevent curious life forms from entering the unscreened intake pipe.

However staff notes that the intake pipe commences in federal jurisdictional waters under the Department of the Army permit and we anticipate that these issues and potential affects to marine species of concern will be further mitigated thru the Federal permitting process.

Staff also has a concern regarding the introduction of nutrient rich deep-sea water to warmer near the coast waters and the potential for algal blooms in the zone of mixing. However staff notes the Department of Health has oversight over the ZOM.

As stated by the applicant, construction activities would potentially affect a few square feet of living coral colonies. As it appears there will be damage to coral or live rock, consultation shall take place with the Division of Aquatic Resources in regards to a determination for a Special Activity Permit.

As there will be temporary impacts to recreational users and makai view planes at Keehi Lagoon and makai of Kakaako Waterfront Park, the public should be notified of the project. Upon completion, the ocean view plane will be restored and the submerged portions of the pipeline and its anchoring structures are unlikely to be visible from boats passing over the system given their depth and the waters clarity in the vicinity.

The DOT Harbors Division requests that the project managers coordinate with the Oahu District Office due to the proximity of the project to Honolulu Harbor to avoid conflicts with maritime operations during construction of this project. In addition, the applicant has stated that they shall coordinate with the Division of Boating and Ocean Recreation at Keehi Lagoon and the Coast Guard relative to maintaining safe navigation during construction activities and operations.

State Parks has agreed to the use of the park for the assembly and storage of the pipeline prior to its being placed in Keehi Lagoon. Conditions for the use of the park will be addressed in the permit issued by State Parks.

The applicant is aware that easements are required for the use of submerged State land.

Further authorizations within the Conservation District are required. Effluent discharge will be regulated through the National Pollution Discharge Elimination System (NPDES) Permit and a Zone of Mixing Permit from the Department of Health. A Department of the Army (DA) Permit is also required for compliance with both Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. In addition Essential Fish Habitat and Endangered Species Act Section 7 Consultation will be required as part of the DA permit. In accordance with the above-mentioned permits, water quality and marine biota monitoring would be conducted during construction and operation. Staff believes compliance with all State, Federal and County requirements will ensure the sustained use of the resources.

Staff believes the project will contribute positively towards the State's Energy Policy and the State 2050 Sustainability Plan. A number of similar systems are now in operation around the world in Sweden, Hong Kong, Canada, the USA and Keahole Point on the

Kona side of the Big Island. The engineering design and deep water pipeline installation has been proven to be feasible, reliable and economical.

When the Honolulu Seawater Air Conditioning is operational, estimates of proposed reduction of uses include: potable water (260 million gallons/year); wastewater generation (84 million gallons per year); fossil fuel consumption and the production of pollutants associated with fossil fuel combustion (reductions of CO₂ emissions-84,000 tons/year; VOC emissions-5 tons/year; Carbon Monoxide emissions-28 tons/year; Nitrogen Oxides emissions-169 tons/year; Sulfur Oxide emissions - 165 tons/year) and the use of harmful chemicals (refrigerants) utilized in air conditioning.

This project involves a number of components with impacts occurring landward to support the distribution of chilled water. Long-term impacts of the intake and return of seawater in the Conservation District are limited to the affects of the pipeline on the benthic community. Staff believes that impacts are not significant and that additional permits, authorizations and mitigative measures will act to further reduce environmental affects.

Staff believes that the proposal furthers the State and the City's ability to achieve energy savings, reduce fossil fuel dependency, and furthers Hawaii's stated sustainability goals.

RECOMMENDATION:

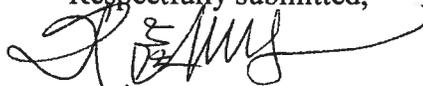
Based on the preceding analysis, Staff recommends that the Board of Land and Natural Resources APPROVE Honolulu Seawater Air Conditioning, LLC's Conservation District Use Application OA-3579 for the Honolulu Sea Water Air Conditioning Project located upon submerged land, makai of Kakaako Waterfront Park, offshore of plat (1) 2-1-060 and Channel D of Keehi Lagoon, Island of Oahu subject to the following conditions:

1. The applicant shall comply with all applicable statutes, ordinances, rules, regulations, and conditions of the Federal, State, and County governments, and applicable parts of the Hawaii Administrative Rules, Chapter 13-5;
2. The applicant, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim or demand for property damage, personal injury or death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors and agents under this permit or relating to or connected with the granting of this permit;
3. The applicant shall obtain appropriate authorization from the Department for the occupancy of State lands;
4. The applicant shall consult with the Division of Aquatic Resources in regards to a determination for a Special Activity Permit;

5. The applicant shall coordinate with the Department of Transportation's Oahu District Office due to the proximity of the project to Honolulu Harbor to avoid conflicts with maritime operations during construction of this project;
6. The applicant shall coordinate with the Division of Boating and Ocean Recreation at Keehi Lagoon and the Coast Guard relative to maintaining safe navigation during construction activities and operations;
7. The applicant shall comply with all applicable Department of Health administrative rules;
8. Before proceeding with any work authorized by the Board, the applicant shall submit four (4) copies of the construction and grading plans and specifications to the Chairperson or his authorized representative for approval for consistency with the conditions of the permit and the declarations set forth in the permit application. Three (3) of the copies will be returned to the applicant. Plan approval by the Chairperson does not constitute approval required from other agencies;
9. Any work done or construction to be done on the land shall be initiated within three years of the approval of such use, in accordance with construction plans that have been signed by the Chairperson, and, unless otherwise authorized, shall be completed within five years of the approval. The applicant shall notify the Department in writing when construction activity is initiated and when it is completed;
10. All mitigation measures set forth in the application materials, in the final environmental impact statement, and all required permits within the conservation District for this project are hereby incorporated as conditions of this permit;
11. The Applicant shall provide public notification to inform the public of the project;
12. The applicant understands and agrees that this permit does not convey any vested rights or exclusive privilege;
13. In issuing this permit, the Department and Board have relied on the information and data that the applicant has provided in connection with this permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete or inaccurate, this permit may be modified, suspended or revoked, in whole or in part, and/or the Department may, in addition, institute appropriate legal proceedings;
14. Where any interference, nuisance, or harm may be caused, or hazard established by the use, the applicant shall be required to take the measures to minimize or eliminate the interference, nuisance, harm, or hazard;

15. Should historic remains such as artifacts, burials or concentration of charcoal be encountered during construction activities, work shall cease immediately in the vicinity of the find, and the find shall be protected from further damage. The contractor shall immediately contact HPD (692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary;
16. The applicant shall insure access to Mokauea Island to those individuals that have a vested interest related to the island;
17. Other terms and conditions as may be prescribed by the Chairperson; and
18. Failure to comply with any of these conditions shall render this Conservation District Use Permit null and void.

Respectfully submitted,



K. Tiger Mills, Staff Planner
Office of Conservation and Coastal Lands

Approved for submittal:



William J. Aila, Jr., Chairperson
Board of Land and Natural Resources

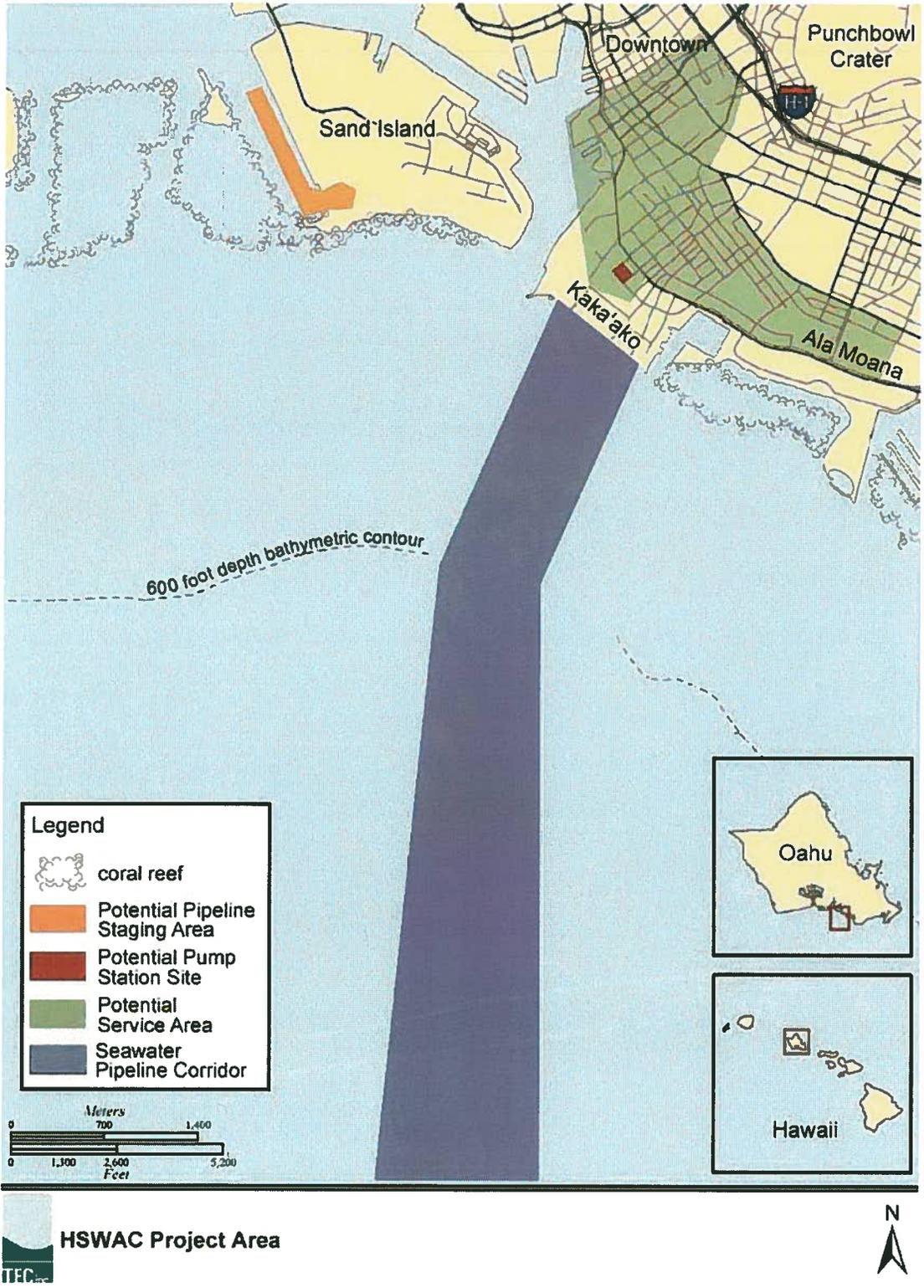


EXHIBIT 1



APPROXIMATE PROJECT ALIGNMENT
 HONOLULU SEAWATER AIR CONDITIONING
 Kalahele, Oahu, Hawaii
 Project No. 08020
 SCALE
 0 50 100 FEET
 APPROXIMATE SCALE 1:5000
 WK
 CONSULTING ENGINEERS
 CIVIL 08-1

Approximate Project Alignment

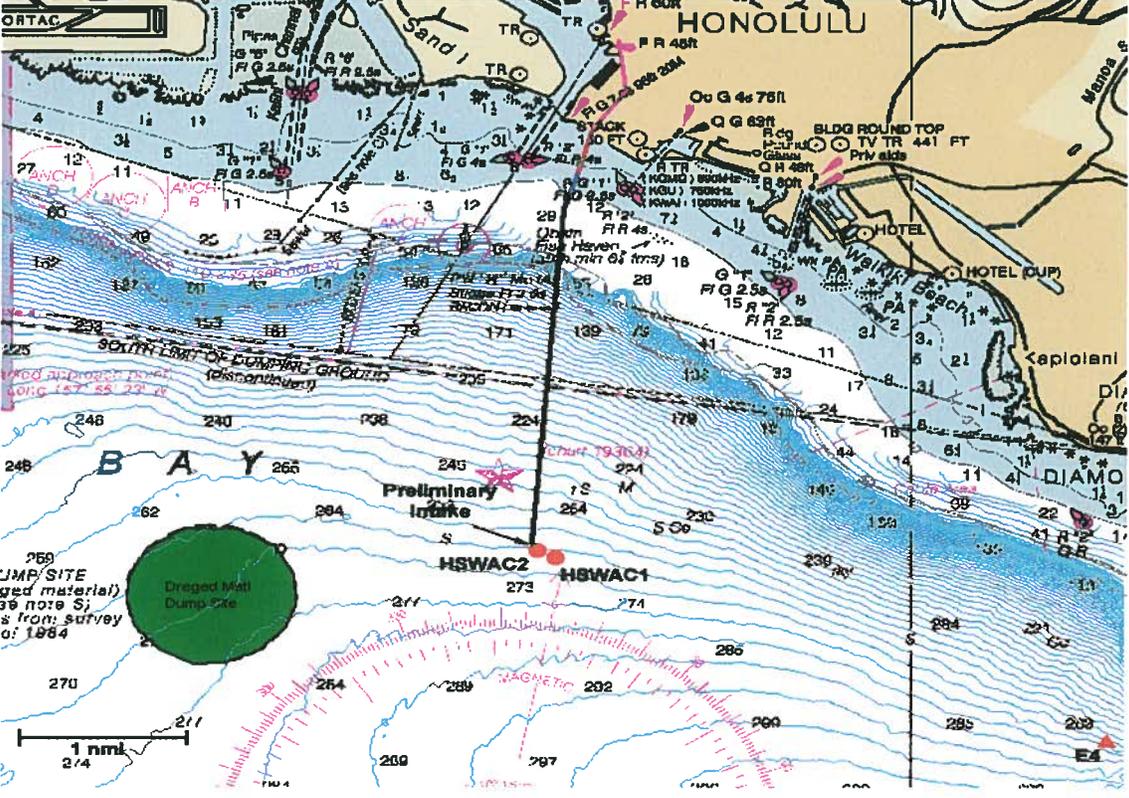
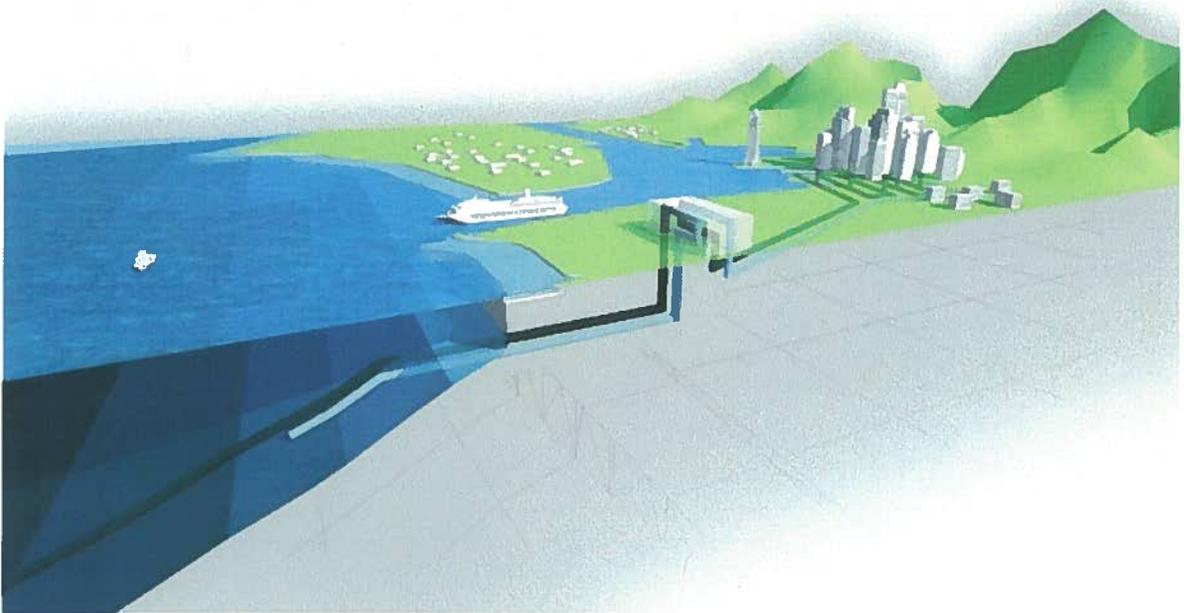
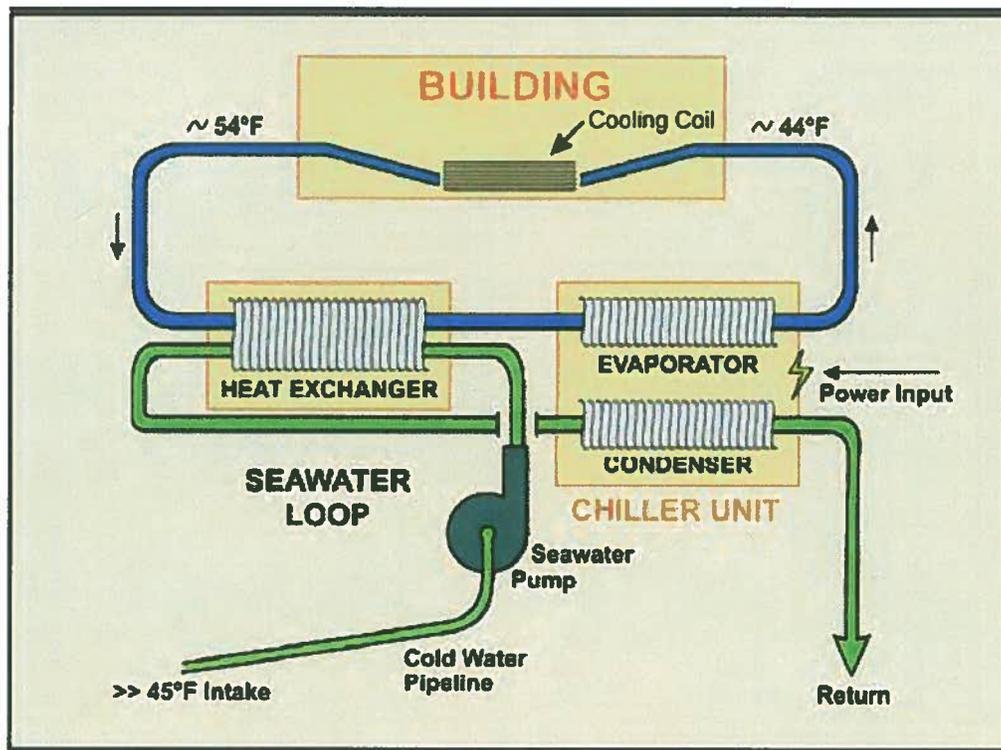


EXHIBIT 2

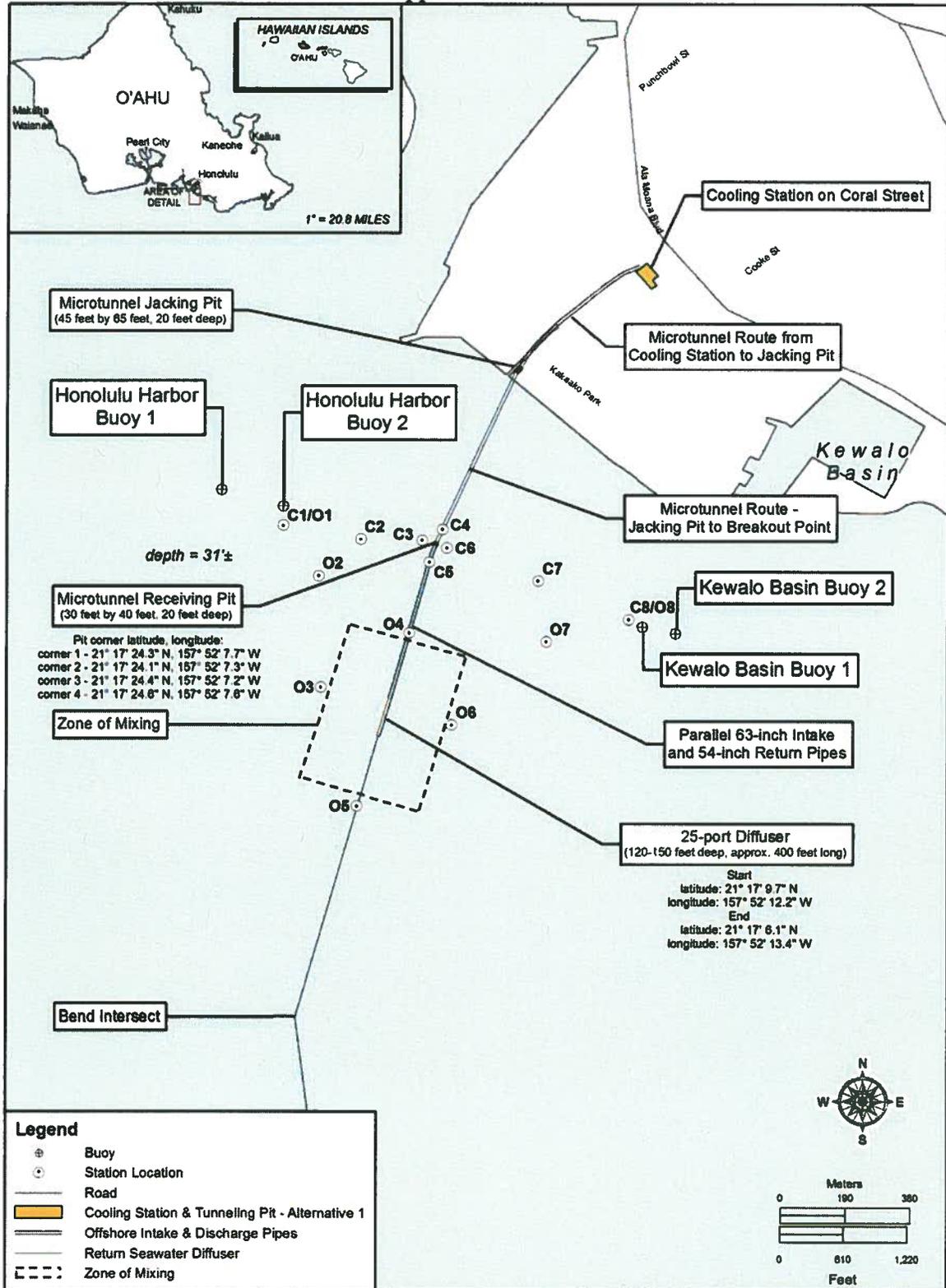


Conceptual drawing of major components of the HSWAC System



Schematic drawing of the HSWAC System with chiller enhancement

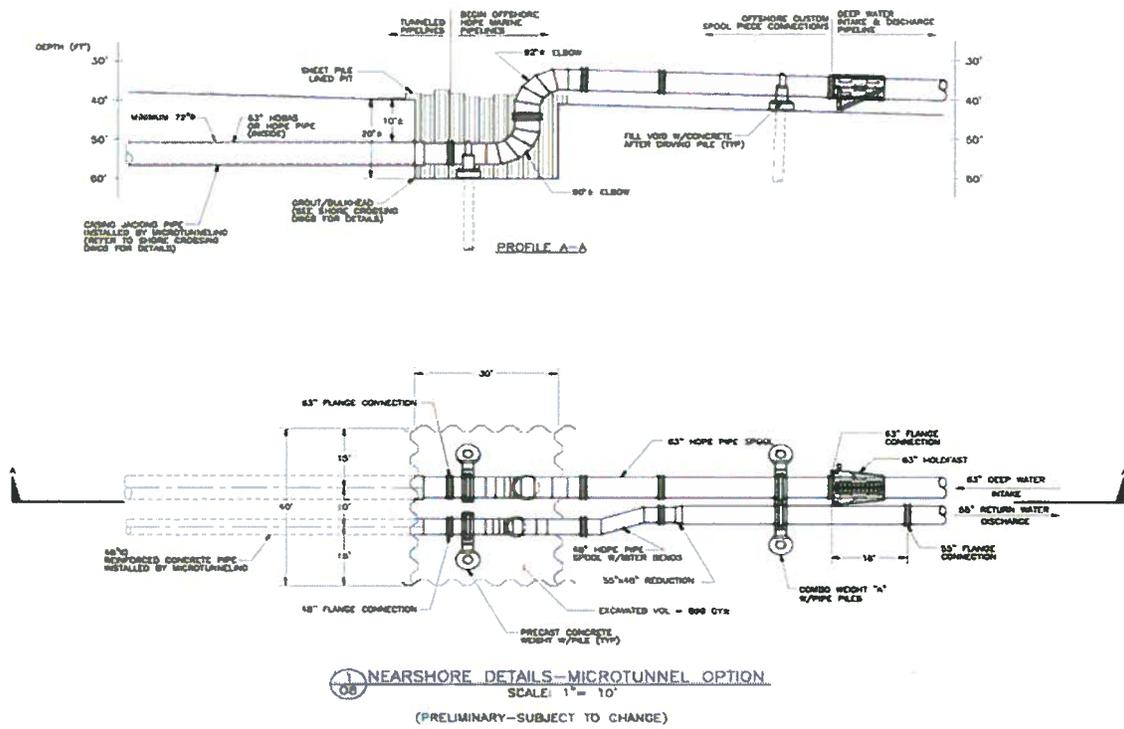
From the Conservation District Use Application



Components in the Conservation District



Example of micro-tunneling rig



Details of Connection Between Micro-tunneled and Surface-mounted Segments of Seawater Pipes

Photos from the Honolulu Seawater Air Conditioning Final Environmental Impact Statement August 2009



Sample of Micro-tunnel Shaft

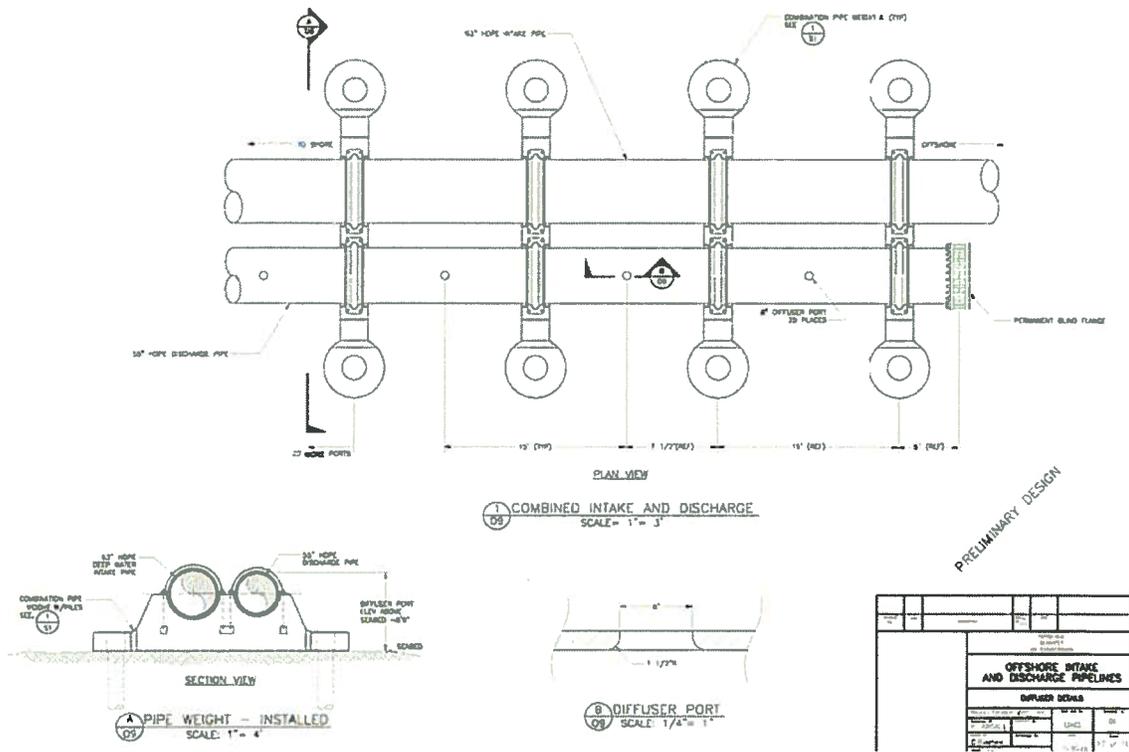


Retrieval of Micro-tunnel Machine



Sand Island Channel D- Boundaries of Proposed Nearshore Keahi Lagoon Staging Area





Diffuser Design



Assembling Flange Joints on Elevator Platform on Crane Barge

Table 3: Proposed Mitigation Measures for the Overall Project (not specific to the CDUA)

<i>Resources Potentially Adversely Affected</i>	<i>Proposed Mitigation Measures</i>
Cultural/ Archaeological	Implement approved "Archaeological Mitigation Plan"
Navigation	Publish "Notice to Mariners" Post picket boats in Ke'ehi Lagoon channel during tow-out of pipe strings
Recreation	Minimize size of restricted areas Restore areas of Kaka'ako Waterfront Park and Sand Island State Park to prior or better condition after use
Utilities/Traffic/ Health & Safety	Applicant to continue to participate in City and State Utilities Coordinating Committee to minimize conflicts with existing systems and scheduled improvements
Noise	Restrict work times Employ proper mufflers on vehicles and equipment
Hazardous and Toxic Materials/ Health & Safety	<p>Test excavated sediments and if contaminated segregate, characterize and properly disposed of</p> <p>Implement proven and effective best management practices (BMPs) and standard operating procedures (SOPs) to:</p> <ul style="list-style-type: none"> Prevent, contain, and/or clean up spills and leaks, and Provide personnel training, operational protocols and procedures and any necessary equipment required to protect human health and the environment. <p>Specific mitigation measures that would be implemented include:</p> <ul style="list-style-type: none"> Create/implement a "Hazardous Materials and Hazardous Waste Management Plan," Create/implement a "Facility Response Plan," Create/implement a "Spill Prevention Control and Countermeasure Plan" (to include training, spill containment and control procedures, cleanup procedures, agency notifications, etc.), Ensure personnel are trained as to proper labeling, container, storage, staging, and transportation requirements for hazardous substances. Also, ensure they are trained in accordance with spill prevention, control, and cleanup methods, Provide adequate and appropriate personnel protection equipment, an eyewash fountain and quick-drench facilities in the work area, and Perform all vehicle maintenance activities off-site.
Traffic	<p>The following restrictions would be employed to mitigate impacts:</p> <ul style="list-style-type: none"> No work would be done during morning and afternoon peak traffic hours. Standard work hours would be between 8:30 am and 3:30 pm, All roads would be open during peak traffic hours before 8:30 am and between 3:30 pm and 5:30 pm, Off-duty policemen would be used to direct traffic when working on major/busy intersections, The contractor would provide a minimum of two lanes for through traffic unless the street is too narrow to make this practicable, in which case work would proceed in half the roadway while keeping the other half open to traffic and alternating the flow of traffic, When activities cross intersections, safe crossings would be provided for vehicles and pedestrians, When work is done in pedestrian walkways, an alternate walkway for pedestrians would be provided,

<i>Resources Potentially Adversely Affected</i>	<i>Proposed Mitigation Measures</i>
	<p>Work on parallel streets would be performed at different times, Access to driveways would be provided when feasible, Depending on the situation, steel plates or jersey barriers shall be used to protect open trenches during non-working hours, No equipment storage or stockpiling would be done in the street right-of-way, and City requirements for repaving trenches would be followed by the contractor.</p> <p>Mitigation measures to be implemented by the contractor would include: Use night work to limit the disruption to local businesses and daytime traffic. Limit night work in streets near residential buildings, Ensure conformance with the "Traffic Management Plan," Establish a telephone hotline with advance schedule information and feedback capability, Provide construction schedules at least two weeks in advance to emergency providers, transportation companies, and businesses and residents, Launch a project website with similar capabilities, Hold a community meeting prior to beginning construction, and Prohibit lane closures during the following times:</p> <ul style="list-style-type: none"> o Chinese New Year, o Thanksgiving Day and the following day, o Christmas Day and two weeks before and after, o King Kamehameha Day Parade, o Honolulu Marathon, and o Great Aloha Run.
Health & Safety	<p>Use police escorts or oversized loads on public roadways Implement applicable OSHA requirements</p>
Natural Hazards	<p>Comply with appropriate design codes and construction specifications</p>
Water Quality	<p>Enclose offshore receiving pit in sheet piling to 10 feet above seabed Employ BMPs during construction, including: Standard BMPs for construction in coastal waters, such as daily inspection of equipment for conditions that could cause spills or leaks, Clean equipment prior to deployment in the water, Proper location of storage, refueling, and servicing sites, and Implement adequate spill response and storm weather preparation plans.</p> <p>Backfill receiving pit with pre-washed basalt gravel Grout microtunnel wall as construction proceeds to minimize possibility of contaminant migration Dispose of excavated material on land Conduct water quality monitoring during construction and operations Outfit return seawater pipe with a terminal diffuser Apply for a Zone of Mixing</p>
Protected Species	<p>The following NMFS-recommended BMPs would be followed during in-water work:</p> <ol style="list-style-type: none"> 1. Constant vigilance shall be kept for the presence of Federally-listed species, 2. When piloting vessels, vessel operators shall alter course to remain at least 100 yards from whales, and at least 50 yards from other marine mammals and sea turtles, 3. Reduce vessel speed to 10 knots or less when piloting vessels in the proximity of marine mammals, 4. Reduce vessel speed to 5 knots or less when piloting vessels in areas of known or

Honolulu Sea Water Air Conditioning Project

<i>Resources Potentially Adversely Affected</i>	<i>Proposed Mitigation Measures</i>
	<p>suspected turtle activity,</p> <ol style="list-style-type: none"> 5. Marine mammals and sea turtles should not be encircled or trapped between multiple vessels or between vessels and the shore, 6. If approached by a marine mammal or turtle, put the engine in neutral and allow the animal to pass, 7. Unless specifically covered under a separate permit that allows activity in proximity to protected species, all in-water work will be postponed when whales are within 100 yards, or other protected species are within 50 yards. Activity will commence only after the animal(s) depart the area, 8. Should protected species enter the area while in-water work is already in progress, the activity may continue only when that activity has no reasonable expectation to adversely affect the animal(s), and 9. Do not attempt to feed, touch, ride, or otherwise intentionally interact with any protected species. <p>If an Incidental Take Authorization (ITA) or Letter of Authorization (LOA) from NMFS is required under the MMPA, measures to mitigate potential impacts may include the following:</p> <p>Time restrictions. Construction activities, including pile driving, would only take place during daylight hours between 7 am to 5 pm, when marine mammal monitoring prior to and during the pile driving could be effectively implemented.</p> <p>Establishment of Safety Zones. Before any pile driving, a clearly marked safety zone for potentially affected species could be established. The safety zone would be marked by buoys for easy monitoring. Biological observers on a boat would survey the safety zone to ensure that no marine mammals are seen within the zone before pile driving begins. If marine mammals are found within the safety zone, pile driving would be delayed until they move out of the area. If a marine mammal is seen above the water and then dives below, pile driving would wait a specified amount of time and if no marine mammals are seen by the observer in that time it will be assumed that the animal has moved beyond the safety zone.</p> <p>Soft Start. Although marine mammals will be protected from Level A harassment by establishment of a safety zone, mitigation may not be 100 percent effective at all times in locating marine mammals. In order to provide additional protection to marine mammals near the project area by allowing marine mammals to vacate the area, thus further reducing the incidence of Level B harassment from startling marine mammals with a sudden intensive sound, a "soft start" could be implemented. Under a soft start, pile driving would be initiated at an energy level less than full capacity (i.e., approximately 40-60 percent energy levels) for at least 5 minutes before gradually escalating to full capacity. This would ensure that, although not expected, any marine mammals that are undetected during safety zone monitoring will not be injured.</p> <p>To reduce entrainment (and impingement):</p> <p>The intake location is approximately five miles offshore at a depth of about 1,700 ft. The euphotic zone (zone of photosynthetic light) typically does not extend beyond the first 330 ft of depth. At the intake depth biological productivity is much less than at shallower depths and the lower density of organisms reduces the potential for impingement and entrainment.</p> <p>The maximum velocity of the intake (approximately 5 ft/sec. or 3.4 miles per hour) would limit entrainment of macroorganisms.</p> <p>Variable speed pumps would be used which would provide for greater system efficiency and reduced flow requirements (and associated entrainment).</p>

Honolulu Sea Water Air Conditioning Project

<i>Resources Potentially Adversely Affected</i>	<i>Proposed Mitigation Measures</i>
Terrestrial Geology/Surface Water	Prepare and implement an "Erosion control Plan"
Air Quality	Implement BMPs to control fugitive dust
Groundwater	Implement BMPs, use settling ponds, tanks or filtration systems to treat dewatering effluents
Terrestrial Biota	Note location of "Exceptional Trees" on construction plans Survey for white terns prior to construction